What is the relationship between the intake of cooked dry beans and peas and type 2 diabetes?

Conclusion

Limited evidence is available to determine a relationship between the intake of cooked dry beans and peas and type 2 diabetes.

Grade: Limited

Overall strength of the available supporting evidence: Strong; Moderate; Limited; Expert Opinion Only; Grade not assignable For additional information regarding how to interpret grades, click here.

Evidence Summary Overview

Only one study was found that measured the relationship between dry beans and peas and type 2 diabetes (T2D). The association between the consumption of legume and soy foods and T2D was examined over an average follow-up of approximately five years in the Shanghai Women's Health Study (Villegas, 2005). Average daily intake of individual food items was combined for the following food groups: Total legumes and three mutually exclusive groups [soybeans (dried and fresh), peanuts and other legumes]. The median intake of total legumes was 30.5 g per day, for soybeans was 11.0g per day, for peanuts was 0.7g per day, and for other legumes was 15.5g per day. Total legume consumption and consumption of soybeans and other legumes were each associated with a decrease in risk of T2D.

Evidence Summary Paragraph

Villegas et al, 2005 (positive quality), a prospective cohort study (Shanghai Women's Health Study) conducted in China, examined the association between legume and soy food consumption and self-reported T2D. Participants were 64,191 women aged 40-70 years. Dietary intake was assessed by validated food-frequency questionnaire (FFQ). Mean follow-up was 4.6 years. Average daily intake of individual food items (grams per day) was combined to compute the following food groups: Total legumes and three mutually exclusive groups [soybeans (dried and fresh), peanuts and other legumes]; soy milk and "other soy products" were analyzed separately. The median intake of total legumes was 30.5 g per day, for soybeans was 11.0g per day, for peanuts was 0.7g per day and for other legumes was 15.5g per day. Total legume consumption and consumption of soybeans and other legumes were each associated with a decrease in risk of T2D:

- All legumes relative risk (RR) between extreme quintiles=0.62; 95% CI: 0.51, 0.74; P for trend<0.0001
- Soybeans RR between extreme quintiles=0.53; 95% CI: 0.45, 0.62; P for trend<0.0001
- Other legumes (not including peanuts) RR between extreme quintiles=0.76; 95% CI: 0.64, 0.90; P for trend<0.0001
- Soy milk RR between high and no intake=0.61; 95% CI: 0.54, 0.70; P for trend<0.0001.

There was no significant (NS) association between consumption of other soy products or total soy

protein and the risk of T2D. The authors concluded that consumption of legumes was inversely associated with the risk of T2D in this population.

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Author, Year, Study Design, Class, Rating	Participants	Study Methodology	Outcomes
Villegas R, Gao YT et al, 2008 Study Design: Prospective Cohort Study Class: B Rating:	N=64,191 women. Age at baseline: 40-70 years. Shanghai Women's Health Study.	Dietary intake assessed by validated FFQ. Average daily intake of individual food items (g per day) was combined to compute the following food groups: • Total legumes • Three mutually exclusive groups [soybeans (dried and fresh), peanuts and other legumes]. Soy milk and "other soy products" were analyzed separately. T2D was self-reported.	Mean follow-up was 4.6 years. The median intake of total legumes (per day) was 30.5g; for soybeans 11.0g; for peanuts 0.7g and for other legumes 15.5g. Total legume consumption and consumption of soybeans and other legumes were each associated with a ↓ in risk of T2D (RR between extreme quintiles): All legumes=0.62; 95% CI: 0.51, 0.74; P for trend<0.0001 Soybeans=0.53; 95% CI: 0.45, 0.62; P for trend<0.0001 Other legumes (not including peanuts)=0.76; 95% CI: 0.64, 0.90; P for trend<0.0001. Soy milk RR between high and no intake=0.61; 95% CI: 0.54, 0.70; P for trend<0.0001. NS association between consumption of other soy products or total soy protein and the risk of T2D.

Research Design and Implementation Rating Summary
For a summary of the Research Design and Implementation Rating results, click here.

Worksheets
Villegas R, Gao YT, Yang G, Li HL, Elasy TA, Zheng W, Shu XO. Legume and soy food

intake and the incidence of type 2 diabetes in the Shanghai Women's Health Study. *Am J Clin Nutr.* 2008 Jan; 87 (1): 162-167.